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THE SCIENTIFIC AMERICAN
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(The Principal Office being at New York,)

By RUFUS PORTER.

☞Each number of this paper is furnished with from two to five ORIGINAL ENGRAVINGS, many of them elegant, and illustrative of NEW INVENTIONS, SCIENTIFIC PRINCIPLES, and CURIOSITIES; and contains as much Interesting Intelligence as six ordinary daily papers, consisting of notices of the progress of Mechanical and other Scientific Improvements,—American and Foreign Inventions Catalogues of American Patents,—Scientific Essays, illustrative of the principles of the Sciences of MECHANICS, CHEMISTRY, and ARCHITECTURE;—Instruction in various Arts and Trades;—Curious Philosophical Expements;—Miscellaneous Intelligence, Poetry and, occasionally, Music.

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TERMS OF ADVERTISING.—For 10 lines, or less, 50 cents for the first, and 12 1-2 cents for every subsequent insertion.

My Pocket.

Greater by far than head or heart,
My chief, my best, and noblest part,
My real dignity thou art, My pocket.

What matter it how learned or wise?
Such mean distinction all despise,
In thee alone true merit lies, My pocket.

For though the truth may harshly sound,
Here man and beast alike are found,
Each only valued at per pound; My pocket.

When I was poor and Tompkins fine,
Why was I never asked to dine?
Alas! alas! the fault was thine, My pocket.

Or, if I made a morning call,
Why did I shiver in the hall?
This was my crime, the worst of all, My pocket,

But when my rich lelation B——
Left me his only legatee,
How glad was Tompkins then to see, My pocket.

Then invitations by the score
Loosened the knocker of my door:
Strange it was always stiff before, my pocket.

Then hosts of albums, lilly white,
Came rolling in with notes polite,
And—would I but one stanza write? my pocket.

Jane, who to all my vows was mute,
Or called me fool and ugly brute,
Now wheedling sigh'd—would no one suit,
My pocket.

Then first my little nephew knew
Their uncle's house was No. 2;
Was it respect for me or you, my pocket?

My surest stay, my best ally,
When duns were loud and friends were shy,
On thee my future hopes rely, my pocket.

Befriend me still thy suitor prays,
Great chairman of the means and ways,
In losses, panics, quarter-days, my pocket.

Thus helped I will not care a pin,
What bubbles burst, what parties win,
Or who are out, or who are in, my pocket.

Hole in the Stocking.

How queerly does a fellow feel
While walking in the street,
When he's aware his stocking heel
Makes visible his feet.

He knows the females as they walk
Before him and behind,
Of his deficiency will talk—
For they are never blind.

He fancies he can hear them say,
"That is a curious chap,
To curl his hair and dress so gay,
With such a stocking gap."

He lifts his foot up awkwardly,
And puts it down again,
And tries to pass, that none may see,
But labors all in vain.

He fancies too a thousand girls
To see his heel are flocking;
O, who can tell the horrors of
A single hole-y stocking!

EPIGRAM.

A political orator upon a cart
Before a gaping crowd displayed his art;
Close by, a donkey made a sudden bray,
Which led a portion of the crowd that way—
A stranger at the moment passing by,
Inquired why two such crowds were gathered nigh?
"Faith," answered Paddy, "'tis a bet, they say,
Which of the two asses can the loudest bray!"

A LONG CANE.—A traveller, among narrations of foreign parts, declared he knew of a cane in South America, which was a mile long. The company looked incredulous, and it was quite evident they were not prepared to swallow it, even if it should have been a sugar cane. "Pray what cane was it," asked one gentleman, sneeringly. "It was a NURRI-*cane*," replied the traveller.

CORNELL'S TELEGRAPHIC IMPROVEMENT.

Fig. 1.

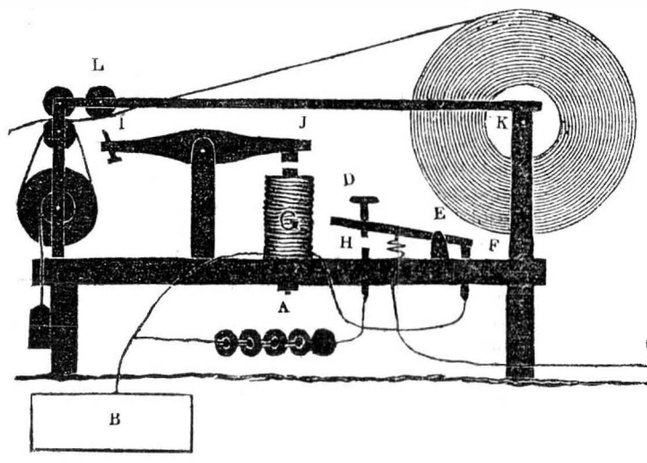
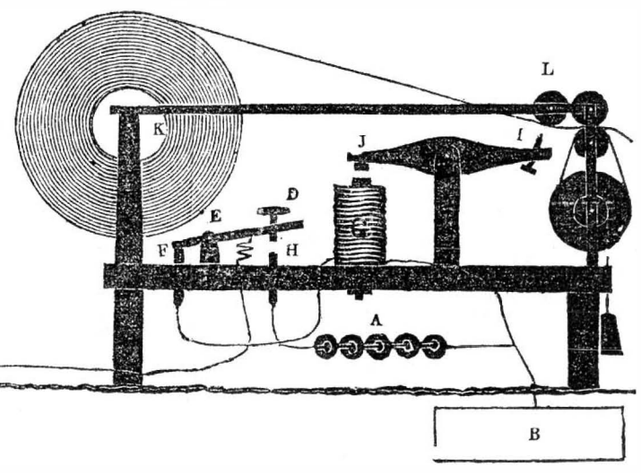


Fig. 2.



EXPLANATION.—This improvement consists, principally, of a peculiar arrangement of the circuit wires, whereby the battery and register machine sf each station, are left entirely at rest, released from electric or magnetic action, when not required to be in operation. The figures 1 and 2, represent the register machines of two stations, at any required distance from each other,—suppose them 50 miles apart,—or one of them may be a branch station, at an indefinite distance from a main line. A A, represent the batteries; and B B are plates of copper placed in the earth, a few feet below the surface. It is to be understood that the earth serves as a conductor between the two plates, so that only one wire is required above ground, to complete the circuit in either direction. The main leading wire, C, terminates at each end in a metalic key-lever, D E F, which is mounted on a fulcrum pivot, E, and in its ordinary position, continues in contact with a small post at F, from which another wire extends to the magnet helix, G, and thence to the plate B. A vertical screw, D, passes through the key-lever, and when depressed comes in contact with the small post, H, which communicates with the plate B, through the battery, A, the screw serving as a key-head, whereby the lever is depressed. In the position here represented, there is no circuit, and consequently no electric action; but whenever the key-head, D, in fig 1, is depressed, the connection at F is broken, and another connection is formed at H, whereby the circuit is formed from the plate B, fig. 1, through the battery, A 1, the key-lever, fig. 1, the main wire C, the key-lever fig. 2, the magnet, G 2, to the plate B 2, and thence through the earth to the plate, B 1; thus completing the circuit, whereby a galvanic current is produced from the battery, A 1; and in its course induces magnetism in the magnet, fig. 2, and puts that machine in motion. Thus the machine of one station is put in action by the key-lever of that of the other: and the same rule reversed, the same effects are produced in the opposite direction. It is not our purpose to give, on this occasion, a full description of the register machine; in fact, the whole machine is not represented in the engraving,—but we would merely explain that I J is a balance-lever, to one end of which is attached an armature, J, which becomes instantly depressed by magnetic attraction whenever a circuit is closed by the key-lever, of another station; and by this motion, the pencil or point, I, is elevated to mark or indent a strip of paper which, by the regular motion of the machine, is being drawn from the roll, K, and passes under the roller, L, where it receives the impressions, and then passes off between two other small rollers, kept in motion by a weight below, only while the machine is under magnetic operation. By this new arrangement, communications may be made in opposite directions, by persons at distant stations, at the same time, and each machine, when not in use, is kept in constant readiness for operation, and will commence operations without any attention from the attendant.

THE GREATEST WONDER OF THE WORLD.—It has for ages been a great mystery in the minds of men, that such vast quantities of water as are constantly flowing into the Dead Sea, from the river Jordon and many smaller streams, should not fill up this lake and cause it to overflow; and the only manner in which the phenomenon could consistently be accounted for, was by supposing that the Dead Sea had some subterranean outlet, through which its waters escaped to the ocean. But even this supposition has now become wholly invalidated by the result of recent observations taken by a committe of English gentlemen, by which this lake is proved to be 1400 feet *below* the level of the Mediterranean! The plains surrounding this lake are thus proved to be the lowest lands on the face of the earth. We have hopes that as civilization is progressing in that country, this subject will be further investigated, and that even the bottom of this lake will be in some measure explored, by means of the most perfect diving bells, and other submarine apparatus.

WONDERS OF PHILOSOPHY.—The body of every spider contains four little masses pierced with a multitude of imperceptible holes, each hole permitting the passage of a single thread; all the threads, to the amount of a thousand to each mass, join together when they come out, and make the single thread, with which the spider spins its web; so that what we call a spider's thread, consists of more than four thousand united. Lewenhock, by means of microscopes, observed spiders, no bigger than a grain of sand, which spun thread so fine, that it took four thousand of them, to equal in magnitude, a single hair.

IDLENESS.—"Wretched," says an English writer, "is the man who has no employment but to watch his own digestion, and who on waking up in the morning, has no useful occupation of the day presented to his mind. To such a one, respiration is a toil, and existence a constant disease. Self-oblivion is his only resource; indulgence in alcohol, in various disguises, his remedy, and death or superstition his only comfort and hope."

GAMBLING.—An individual, some time ago, published a statement in a German paper, the result of his own observation for two years—that of six hundred individuals who were in the habit of visiting gambling houses, he states that nearly one half not only lost considerable sums, but were finally stripped of all means of subsistence, and ended their days by self-murder. Of the rest, not less than one hundred finished their career by becoming swindlers or robbers on the highway.

AMBER.—Amber is a beautiful yellow and, generally, transparent substance, found principally, in the form of small lumps, roundish, and like bird's eggs, on the shores of the Baltic. Pliny speaks of this substance 1800 years ago, and poetically supposes they may be the chrystalized tears of men and animals who are wandering in sorrowing grief.—Amber is one of the most ancient of all the substances noticed by early writers. It frequently contains small insects, completely surrounded and thus preserved to the most distant age. Thus have lost species of insects been preserved by specimens being included in Amber.

RICE CEMENT.—This useful and elegant cement, which is beautifully white, and dries almost transparent, is made by mixing rice-flour intimately with cold water, and then gently boiling it. Papers pasted together with this cement will sooner separate in their own substance then at the jointing. It is, therefore, an excellent cement in the preparation of curious paper articles, as tea-trays, ladies' dressing and work boxes, and other articles which require layers of paper to be cemented together. In every respect it is preferable to common paste made with wheat flour. It answers well for pasting into books the copies of writing taken off by copying machines or unsized silver paper. With this composition, made with a small quantity of water, that it may have a consistence similar to plastic clay, models, busts, statues, basso-relievos, and the like, may be formed. When dry, the articles made of it are susceptible of a high polish; they are also very durable.

THE PARLOR'S OPEN.—While we were engaging yesterday a negro to do some work in which it would be necessary for him to employ others to aid him, he complained that he could not get them now without difficulty. In the Winter, said he, I can have a crowd about me, whenever I wish, but now the parlor's open and the gentlemen are taking their ease. We asked him what he meant by the parlor's being open. He pointed to the sky and to the sun, and said he meant that Summer had come. The black man's metaphor pleased us, for it showed that he felt the beauties of nature.—*Ex.*

GOLDEN INDIA.—Such has been the accumulation of the precious metals and stones in India, where the mines are indigenous, that it is generally estimated that Nadir Shah, in 1740, carried away not less than £400,000,000 or £500,000,000 sterling! In Jahanqueir's autobiography he relates that a golden platform around his throne weighed 400 lbs.; and that his throne and diadem were worth £4,000,000. When he married his minister's daughter, he presented her with as many lacs as amounted to £7,000,000, and with a necklace of forty beads, each bead costing him £2,000. The province of Bearn on one occasion furnished about $4,000,000 of gold, and the same sovereign spent besides, nearly £2,000,000 on the tomb of his father Akbar, which formed one of the wonders of Golden India.

WANT OF FORETHOUGHT.—A black snake which had discovered the nest of a woodpecker, climed up the tree, and putting his head into the hole, swallowed the woodpecker. Alas! when he would have withdrawn, he found his throat so much distended by his supper, that he could not get back, and so he died with his length exposed, dangling from the woodpecker's hole, an admonition to all who passed by, not to get *into* a scrape, until they had contrived how they should get *out* of it.

JOHN NEWTON.—"I see in this world," said John Newton, "two heaps of human happiness and misery: now if I can take but the smallest bit from one heap to the other, I carry a poinl. If, as I go home, a child has dropped a half-penny, and if by giving it anoer I can wipe away its tears, I feel that I have done something. I should be glad indeed, to do greater things, but I will not neglect this."

COLORS.—In colors the ancient certainly far surpassed the modern. Sir Humphrey Davy made an effort to analize the celebrated Tyrian purple of the East, but these efforts were without success—he declared that he could not discover of what it was composed. The Naples yellow, too, though less known, was much used, and the art of making it is entirely gone. The Tyrian purple is the color of many of the houses of Pompeii, and they look as fresh as if just painted. The colors of Titian are as vivid and beautiful as when first laid on by the great artist, while those of Sir Joshua Reynolds already look chalky and dead. Sir Joshua himself confessed, after making it the study of his life, that he has never been able to preserve the beauty of their paintings. But if we marvel at these artists three centuries back, what shall we say of those paintings found in the tomb of Egypt, more than two thousand years old, and yet keep fresh and bright, though for that time beneath the ground, in the damp caves of the East? The portrait of the very wife of Solomon is found there, just as she was painted on the eve of her departure from her father's home to share the throne of Judea; and not only is the color of her garments preserved, but the bloom is still on her cheeks and lips, and the lustre still in her eyes, even as it was then. There are paintings, too, as far back as the time of Moses; a portrait supposed to be of Eico, the king who drove the Israelites into the Red Sea, and even the colors of this are perfectly preserved.

A GOOD TURN.—A poor fellow who had spent hundreds of dollars at the bar of a certain groggery, being one day faint and feeble and out of change, asked the landlord to trust him with a glass of liquor. "No," was the surly reply: "I never make a practice of doing such things." The poor fellow turned to a gentleman who was sitting by, and whom he had known in better days, saying, "Sir, will you lend me a sixpence?" "Certainly," was the reply. The landlord with alacrity placed the decanter and glass before him. He took a pretty good horn, and having swallowed it and replaced the glass with evident srtisfaction, he turned to the man who had lent him the sixpence and said—"Here, sir, is the sixpence I owe you: I make it a point, degraded as I am, always to pay borrowed money before I pay a rum seller."

THE CREDIT SYSTEM.—A lady with a sweet face, and remarkably tempting pair of lips, entered one of our shops a few days since, and after examining some small articles, enquired the price of a nice litle pair of mits. The shopkeeper had almost lost himself in gazing at the ruby portals through which came the little musical voice. "Miss," said he, "you may have them for a kiss." "Agreed," replied the lady, the blush on her cheek eclipsed by the sparkle in her eye; "agreed, and as I see you give credit here, you may charge it on your book and collect it in the best way you can!" Smiling enough on the confused clerk to pay half the debt, she pocketed the parchase and tripped gaily out.

TAKING IT COOLY.We saw a fellow yesterday, says the Pittsburg Journal, taking a snooze on the Alleghany wharf, with his feet in the water, and his head on a board pile. He did not look as though he was in the habit of touching cold water often.

Amusing.

BORROWING A KNOCKER.—"What do you want here? Why are you knocking so loud at this door?" "Och my darlint, don't let me be after waking any of your family;—I'm only jest using your knocker to wake the people at the next door, as I'm locked out, and their door has no knocker to it."—Rap, rap, rap.

"Why so late?" said a schoolmaster to a little urchin as he entered the room, on a cold slippery morning in February. "Why sir replied the boy, "I would take *one step forward*, and slide *back two*." "Indeed" said the teacher, "then how did you get here at all, if that was the case?" "I turned around and walked the other way."

QUAKER MEETING.—A young man from the country lately on a visit to a quaker, was prevailed on to accompany him to meeting. It happened to be a sileat one. When he left the meeting house with his young friend, he asked him "How didst thou like the meeting?" to which he pettishly replied, ', Like it! why I can see no sense in it, to go and sit for whole hours together without speaking a word. It is enough to kill the devil?" "Yea, my friend rejoined the Quaker, "that's just what we want."

A SCHOOL BOY'S WIT.—The master of a free grammar school was one day endeavoring to instil into the minds of his pupils that two negatives make a positive. On a remarkable fine day, shortly afterwards, the boys were petitioning their master for an afternoon's holiday, to which he hastily replied, "no, no." One of the boys reminded him of the fact, that "two degatives make a positive," and therefore claimed a holiday. The master, pleased with the boy's wit, immediately granted the request.

UP SIDE DOWN.—One of our fellow citizens, for the purpose of arresting attention, caused his sign to be set upside down. One rainy day a son of Hibernia was discovered opposite, standing with great gravity upon his head, and fixing his eyes steadfastly upon the sign. On inquiry being made of this inverted gentleman, why he stood in so singular an attitude, he answered—"And isn't it the sign I m trying to read, sure."

MILITARY DUTY.—A Yankee being warned to do military duty, demanded to be excused on the plea that he was once drafted to go into the army; but that he procured a substitute, and of course was entitled to the same privileges as if he had gone himself; and as his substitute was killed, it was plain that if he had gone himself, he would have been killed, and thus forever would have been exempted from further duty. The plea was accepted by acclamation.

A COOL EXCUSE.—A gentleman was looking attentively at some amusing caricatures, in the window of a print shop, when on a sudden he felt some one at his pocket. As there was only one person standing near him, he instantly turned round upon him, and looking him full in the face, said, "Your hand, sir, was in my pocket!" "Was it, sir?" the other very calmly replied; "I really beg your pardon, if it was; but the weather is so very cold, one *is glad to put one's hands anywhere!*"

"L-A-W—*Law.*"—The following was recently copied verbatim, &c.: "And the said Defendant as to the said Surrijoinder of the said Plaintiff to the said rejoinder of the said Defendant to the said Replication of the said Plaintiff to the said second plea of the said Defendant to the said second count of the said Plaintiff's declaration, whereof the said Defendant puts himself upon the country doth," &c.
Signed by the said C. D.

AN ALARM.—A gentleman travelling on an unfrequented road in Maine, and passing a solitary shantee, or shingle-shop, his attention was arrested by a loud outcry of "Hallo there! I say! Murder Fire! Tongs! Gridirons! Brimstone! Halloa-! ao!" and a man was seen rushing in great haste, wearing a leathern apron, but without his coat, and approaching the traveller. "What is the matter? what's the matter?" enquired the traveller. "O," replied the settler, "I'm out of tobacco! got any about you?"

EVERY MAN IS RELIGIOUS.—A clergyman was conversing with a parishioner on the importance of a due observance of the Sabbath, and was surprised to find his companion readily seconded his views of the subject. 'Why, neighbor Jones,' continued the parson, 'I have been informed that you often drive your team, and even go a fishing or a hunting on the Sabbath.' 'True,' replied Jones 'but then on those occasions I always whistle *psalm* tunes.'

CROSS-GANGING.—A newly imported Irishman engaged to work for a farmer, professing to be well acquainted with the business, and was employed to mow a field of grass. In the course of the day, the employer visited the field, and complained that the grass was cut much too high, and that some of it was left at full length. 'Now don't be after carticising the job before its finished,' answered Pat, 'this is but once gang'd over as yet, but I shall cross-gang it directly.

A JACK TAR'S IDEA OF A LOCOMOTIVE.—"Why blast the thing," says he, "there's nothing shipshape above-board, or manly about it. Watch a ship now, with her canvas bellying out, laying down to it just enough to show she feels the breeze, tossing the spray from the bows, and lifting her head over the seas as if she stepped over 'em; there's something like life there. There's something noble about a horse; he steps as if he knew he was going, and was proud of his duty able to do it. But that lubber—bah! that there concern comes insinuating, sneaking along—crawling on his belly, like a thundering long snake with a pipe in his mouth."

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SCIENTIFIC AMERICAN

NEW-YORK, THURSDAY, MAY 28.

Drawings of machinery, engraving on wood, and lithographic drawings, neatly executed, at the lowest prices, at this office.

Post Masters—Who receive this paper, will confer a special favor by mentioning the subject occasionally to scientific mechanics.

To Correspondents.—H. C. Turner, of the 15th received; we had previously sent the book and papers. 'Yankee,' of Providence, will be attended to next week. C. R. rambles too much, and must excuse us, though some of his sentiments are about right. 'Subscriber,' of Newark, on velocity—shall not be long neglected. Mr. G.'s improved brake, not yet ready. 'A Patron,' of Boston, will be accommodated when we return from W. Poetry by M. B. P. rather late for the season. R. Roberts will find his answer in this paper; at least he may recollect that the secondary current is always contrary to the primary. M. S., of Floyd, will receive due attention in time.

Late from the Seat of war.

FROM THE SEAT OF WAR.

Two Important Victories.—The following is copied from the "*Sun*," having been communicated by telegraph, and published in an extra on Sunday morning.

The first battle was fought by General Taylor, on his return from Point Isabel to the camp, on the 7th inst. He encountered, it was supposed, from 6000 to 7000 Mexicans, to which he had but 1600 men to oppose, and yet with that small force he cut his way through the Mexicans, killing a large body of the enemy, and capturing their cannon. The battle was fought on the seventh, and our troops, wearied and fatigued after the action, slept on the field, and found next morning 200 Mexicans lying near them killed. Several pieces of artillery have been taken by our troops, and the disparity of force was so great that it will be hailed as a most glorious result for the arms of the United States.

The second battle took place on the 9th instant, commencing at 3 1-2 o'clock P. M., within three miles of Gen. Taylor's Camp. The action was on the edge of a ravine, and one mile from the chapparal, which was near twelve miles in width. The Mexicans commenced the action with their artillery, which was posted so as to sweep a narrow passage through which General Taylor was advancing, there being a swamp on the other hand. General Taylor immediately ordered a charge to be made in the teeth of the enemy's destructive fire, and the troops promptly responding, carried the enemy's guns at the point of the bayonet.

So sudden and impetuous was the attack, that General Arista had no time to save his papers, which with all his correspondence. fell into the hands of General Taylor. The action lasted one hour and a half, in which time 600 Mexicans were killed or wounded, and the Americans took 300 prisoners and eight pieces of artillery. The total loss of Mexicans in both actions was at least 1200. The Mexican forces amounted to at least 6000 men, while that of the Americans did not exceed 1600 men. An exchange of prisoners took place subsequent to the battle, by which Captain Thornton and Lieuts. Hardee and Kane were released. General Taylor reached his camp the afternoon after the action, leaving there his whole force. He left the next morning for point Isabel, and arrived there on the evening of the 10th, without molestation. On the morning of the 11th, he started back to his camp, opposite Metamoras. During the progress of Gen. Taylor's victorious army from Point Isabel to the camp, (in which he had six hundred wagons in charge,) Commodore Conner's fleet, consisting of the frigates Cumberland, Raritan and Potomac, sloop John Adams, and brig Somers, arrived at Brazos, in sight of Point Isabel, in season to hear the cannonading of both engagements; and the Commodore sent despatches to General Taylor informing him of his readiness to land 1600 men, sailors and marines, should they be required. On the return of General Taylor to Point Isabel, he held a conference with the Commodore, and returned to the camp with requisite materials for destroying Metamoras, (which had not been destroyed, as was reported in the former engagement,) in case the Mexican flag was not struck within 24 hours. It is stated that the American Consul and other Americans in Metamoras had been arrested and sent off to another town about 20 miles distant.

Hussey's Reaping Machine.—We have noticed this machine some time since, and think rather favorably of the invention; but what has drawn our attention to the subject at this time, is the appearance, in one of our exchanges, of a notice of the machine accompanied by an engraving in which the horses are represented as walking on the heads of the standing grain. Whether this elevation of the horses is in consequence of any new peculiarity in the machine, we are not informed.

Post-Office Boys.—A subscriber at Hubbardston Mass., complains that his paper has not reached that Post Office for several weeks, although we have positive evidence that it has been promptly and carefully mailed every week; of course it proves to a tolerable certainty that the clerk of some of the post-offices between Hubbardston and Boston, has discovered the excellence of the paper, and looks out for it. We will thank him to let the paper pass.

An Army of Brothers.—It is stated in th Boston Traveller that the Colonel of one of the regiments in Martinique, had thirty sons by one wife, and that the whole thirty were stationed in the front rank of his regiment at the time of the attack on the island by the British.

New Inventions.

A new Horse-power.—We have received from the inventor, Mr. D. Woodbury, of Springfield Vt., a drawing and description of a portable horizontal horse-power, on a new, novel, and ingenious plan. It would be useless to attempt a description of this invention, without an engraving: but among its peculiarities we observe, that although it is constructed for the horse to walk in a circle round the machine, the motion may be carried by a belt to any other machinery in any direction; the machine is mounted on wheels so as to be completely portable, and can be adjusted in the most favorable situation, and the belt is sufficiently elevated to allow the horse to walk under it. The whole arrangement is very ingenious, and we should expect the invention to come into extensive use.

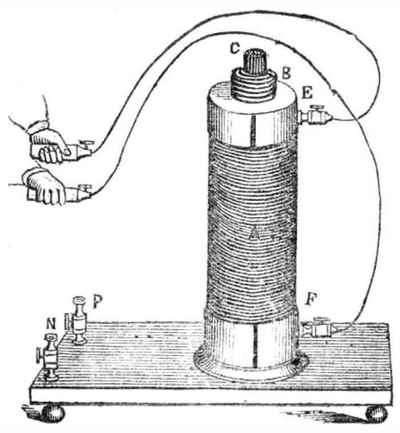
A Musical Telegraph.—A gentleman writing from St Petersburg, Russia, speaks of the invention of an electro-magnetic Telegraph by which sounds instead of characters, are made the medium of communication. Ten wires are used, each of which produces a peculiar sound, and one or more of these sounds may be produced at the same time. This invention may be very curious, but we are not inclined to attach much importance to it, even if the report is correct.

An Improved Pump.—We have before us a drawing and description of the most compact, simple and perfect double acting forcing pump that has ever come under our notice. It carries two pistons in one barrel, with an air chamber connected, and is operated by a crank. We shall procure an engraving, and give a full description in a few days. The inventor is Mr. A. J. Talbot, of Taunton, Mass., who has taken measures to secure a patent.

A Pick-pocket.—A rumseller in Worcester, Mass., has, among other customers, one who has lost both arms. The accommodating retailer holds the glass to the mouth of his armless customer, and then fingers his pockets for the money, making change to suit himself.

Galvanism.

Continued from No. 36.



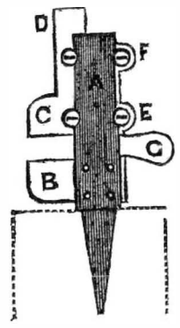
Producing Shocks.—Neither a continuous nor interrupted current of galvanic electricity, while passing from one pole of a battery, through a circuit to the other pole, produces any sensible effect on a person who may constitute a part of the circuit: but when a helix is coiled outside of, or over, one through which the electric current is passing, a secondary current is induced in the outside coil, by which sensible shocks are produced when the first circuit is either broken or closed. To accommodate, or take advantage of this principle, a compound or double helix is used in connection with an electro-magnetic revolving machine, with a break piece or pole-changer—the revolving armature described in No. 34, for instance,—that there may be a quick succession of breaks or interruptions of the electric current. The compound helix consists of two helices, one within the other, and a bundle of soft iron wires in the centre. as represented, A B C, in the cut. The inner helix is composed of several strands of insulated copper wire, of large size, say No. 18. The similar ends of these strands, at one extremity of the helix are connected with one pole of the batery. via the binding-screw cup, N; and the other ends are connected to the cup P, and passes thence to the battery through the revolving armature before-mentioned. The external helix is of fine wire, from 1000 to 3000 feet long. It is made wholly separate from the interior coil, and may be lifted off occasionally. The ends of the wire composing this helix are connected to two brass bands, which enclose the helix at the top and bottom thereof, and to which are attached two binding screw cups, E F, and from these cups, two wires proceed, terminating in two brass handles, which are to be clasped by the hands of the person who is to experience the shocks. Nothing now remains to complete the arrangement, but to insert a bundle of iron wires in the centre of the inner helix, and connect the first current to a charged battery, consisting of three or four pairs, consecutively connected. The electric current will put the armature in motion, which will rapidly break and re-close the circuit; and this current, passing through the interior helix, will induce a secondary current in the opposite direction in the exterior helix; and as often as the first circuit is either broken or closed, a *wave* of electricity is induced in the second helix, and produces an electric shock on the hands arms and body of any person who takes hold of the brass handles during the operation of the machines. The sensation produced is a pain and numbness in the muscles of the wrist, arms and shoulders; and if powerful, it so contracts the muscles that the subject has not power to unclench his hands so as to let go the handles. An amusing and mirth-making experiment with a golden eagle is practised with this apparatus by exhibitors, and which we shall describe and explain in our next.

(To be continued.)

Correction.—The credit of the solution of the problem in No. 34, should have been put down to J. C. Lucky, instead of L. E. D. Another correct answer from C. M. Parks, was received too late for notice in our last number.

Arts and Trades.

IMPROVEMENT IN BLACKSMITHING.



In this cut is represented a tool, by which small bars or rods of heated iron may be cut square off with the most perfect facility. An iron post A, eight inches high, two inches wide, and half an inch thick, is made with a shank at the bottom, which is driven into a block of convenient height and size. To this post is firmly attached by screws, a knife or cutter B, the blade part of which, projects about two inches from one side of the post. The cutter is two inches wide and three eights of an inch thick; the upper edge of the blade part, being made sharp. Another cutter C, of similar length, and thickness, is placed directly over the first, and with its edge downward. The top of this cutter, projects upward to D, a little above the head of the post, and two ears E, F, project horizontally from the side opposte the blade. Two guide screws, with round flanched heads, are so adjusted to the sides of these ears, that the heads of the screws project over the edge of the front side of the post: and two other similar screws, being so attached to the cutter, that their heads project over the opposite side of the post. These four screws serve as guides, to keep this sliding cutter in its place, and its motion perfectly vertical. A small spring, G, is attached to the top of the cutter B, and presses against the cutter C. in a manner to raise it up about half an inch. The cutters are so adjusted that when C, is forced down, the edges of the two are brought close together, at the same time that the plain parts come in contact, which prevents any injury to the cutting edges. When a piece of iron is placed between the cutting edges, but resting upon that of B, a stroke of the hammer on the cutter-head D, will cut off the iron. If, for this purpose, the operation of a foot lever, better suits the operator, a lever may be adjusted to the block, near the ground, and connected by a small rod to the sliding cutter in a manner so simple, as to require no particular description: and the iron may be cut off, by forcing down the lever with the foot. Other improvements will be introduced into future numbers.

Lithography.—This branch may be counted among the curious, as well as useful arts; and its introduction has effected an extensive revolution in picturesque printing. It consists in drawing on plates of stone, any required design, and trasferring any required number of copies thereof to paper. The stone used for this purpose, is brought principally from the banks of the Rhine, in Germany, though some excellent specimens have been found in this country; it passes under the general name of lithographic stone. It might probably be manufactured artificially; but as it is readily procured in every city, and at low prices, there is no occasion for making it. The plates or slabs are usually about two inches thick, and the faces are ground by rubbing two stones together, with a little fine sand intervening between them; a polished surface is not required. The designs are drawn on this surface with ink or crayons. The lithographic crayons are composed of a mixture of two parts bees-wax, one part shellac, one of tallow or spermacitti, and one of hard soap. These being all thoroughly melted and mixed together, a quantity of lamp-black is added, sufficient to color the mass a full black, but withal rendering it hard or brittle, when cold. This compound, which is somewhat elastic, is cut up into small pieces of a convenient size to be inserted in a pencil case or quill; and being pointed at the marking end, they are ready for use. These crayons are applied to the stone in a similar, but in a more gentle and careful manner, to that of a common shading lead pencil, till all the required shades and tints are produced. When the ground is required to be black, the process of producing the shades with the crayon, is rather slow and tedious, but the practitioner will readily learn the best mode of accomplishing it. Sharp lines cannot be drawn with the crayons, and therefore a fluid ink is prepared for this purpose, to be used with a pen, or hair brush or pencil. The preparation of the lithographic ink is similar to that of the crayons, only diluted with water, while in a warm state, which may require a larger proportion of soap. This ink may be worked more or less dilute, as the depth of the lines or shades may require.—Both crayons and ink may usually be found ready prepared for less expense than the trouble of making them in small quantities. When the drawing is completed, a little muriatic acid, diluted with water three to one, is spread over the face of the stone. As soon as the acid appears to have commenced a corrosive action on the surface, it is carefully washed off with a dilute solution of gum-arabic. The stone is now ready for printing.

(To be continued.)

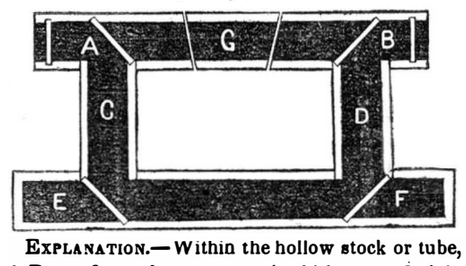
American Silk.—We have on hand some samples of sewing silk, manufactured at Manchester, Ct., and which is at least equal to any thing of the kind that we have ever examined. Improvements in facilities for this manufacture, are frequently introduced, and the fact is thoroughly established, that this branch of industry maybe as profitably carried on in this country, as the manufacture of woollen and cotton factories.

Play of Words.—In the course of a capital trial, in Philadelphia, in which a young lady was a party, the Attorney General stated that she had *called a sister to assist her*. It is quite probable that she had a *counsellor to council her*, in the course of the trial.

Jumble.

A woman has been sent to prison in Philadelphi a for the fourth time, and each time for *flogging her husband.*——An exchange paper says the best *snuff* in the world is a *snuff* at the early morning air.——It is said to be the height of inquisitiveness to climb the house top and look down the chimney to see what one's neighbor has for dinner.——Banjo thinks the moon is a much more useful planet than the sun, because it shines in the night when light is most needed.——There are boulders of ice still in the Penobscot—relics of last winter.——The Philadelphia Ledger speaking of Greenville Mellen as the author of a temperance ode, calls him a *water melon.*——We have heard of a man who got *corned* so often that his voice became *husky* and his words *mealy.*——A feminine swine with 12 small pigs, are said to constitute a *litter*-ary assembly.——In Dublin potatoes are one hundred per cent. higher than at this time last year.——The printed books in the British Museum Library occupy ten miles of shelf.——The Marseilles journals state that at no former period has the Mediteranean proved so tempestuous as during the late winter.——We judge from the appearance of the last 'Germantown Telegraph' that it has embraced the 'cold water system' somewhere on the way.——The length of silk thread from a single cocoon, is nearly a thousand feet.——A distinguished professor, lecturing at the Lowell Institute, recently assumed that air, when *seen* in small quantities is invisible.——The explosive force of closely confined gunpowder, is six and a half tons to the square inch.——A notorious rum-drinker having died, some person inquired the cause of his death, and was answered that "his breath had become so strong that he could not hold it."——An exchange says he hopes his *clams* will be received with tenderness by a discerning public,"—and we think the matter *claims* notice.——Somebody says that ladies would make good editors, because they could furnish such *pretty eye*-tems.——A fire-engine has been built in England to be sent out to Oregon for the avowed purpose of 'putting Jonathan's pipe out.'——Babe, the pirate, who has been under sentence of death for several years, and once or twice respited, has received a full pardon from the President.

Magic Spy Glass.



Explanation.—Within the hollow stock or tube, A B, are four glasses, two of which are of plain transparent window glass, and are placed near the two ends of the tube; the other two are mirrors, and are placed obliquely, as shown at A and B. The two square posts, C D, which support the tube, are hollow, and the plank into which they are tennoned at the bottom, is also hollow from E to F. Two other mirrors are placed obliquely within the hollow of the plank E and F, and directly under the hollow posts. The surfaces of the plank, and of the posts are closed up and finished so as to appear solid. Thus when a person places his eye at one end of the tube for the purpose of looking through it towards any object, the rays of light proceeding from the object, enter the other end of the tube, and are reflected downward from the first mirror to the second; then horizontally from that to the third; —upward vertically from the third to the fourth, and thence horizontally to the eye. Thus it appears to the spying person, that he is looking straight through the tube, nor can he distinguish the difference: and when the Section G, is removed, and a person's hand or a piece of plank is thrust between the remaining parts, the sight is not impeded, and the beholder who does not understand the secret of the construction, will be confident that he actually sees through the solid intervening article, whatever it may be.

Highly Patriotic.—The "Oasis," published at Nashua, N. H.—by the way, one of the neatest and brightest papers ever published,—thus holds forth to the "sons of the patriots" in those diggins:

Young men, now is the chance to cover yourselves with glory! to make your names immortal! to fill a page of your country's history! to enact the hero! and to get a slug in the gizzard!! War with Mexico makes an opening for many a man to tumble into. You can stand up and get a shot through your hat, and boast of a narrow escape! or leave a leg on the field, and limp away to a fat pension! You cannot but perceive the grand chance presenting itself in this opportunity for *enlisting into the army!* Are you cowards, ye laggards, that ye hesitate to book your names for this pleasant tour South! or has the blood of your revolutionary sires, warmed by the fires of liberty, turned to water! Out upon you, cravens! not yet a name enrolled, and the red streamers of war floating in the breeze! ye stand spell-bound, while the booming of cannons and the sharp rattling of musketry are telling of men bleeding and dying for their country, and "ready to do it again!" * * * * In fine, *you* may all go, while *we*—will stay here to *tell the news.*

An Adventurous Lady.—The lady of Col. Lewis (who is appointed U.S. Commisioner to treat with the Camanche Indians,) accompanies her husband in his mission among the Aborigines. She is said to be a beautiful English lady,—rides well on horseback,—wears a belt and dagger,—shoots a rifle and pistol, and has been married four years.—The Col. is a gallant, sprightly man, and always happy in her company. Her presence will produce a favorable impression on the Indians.

Good Fishing.—The harbor of Vimeroux, near Calais, lately became filled with such immense shoals of mackerel, that the inhabitants turned out and closed the entrance to the harbor, and caught 5000,000 of the fish,

VARIETY

It is stated in an agricultural paper, that the most delicate seeds of plants, may be sent to all parts of the world in a high state of preservation, by enclosing them in damp brown sugar.

The overland mail from London to India, now carried through Belgium and Austria, once in three weeks, usually contains 40,000 letters, which, with the newspapers, make a total of 50 cwt.

The City Bank of New Haven lately answered a draft of the U. S. Government for *fourteen cents*, being the balance on deposite in that bank in favor of Uncle Sam.

Fanny Smith, a young girl employed in the Washington Mills, at Gloucester, N. J., wove, week before last, *nineteen* cuts, 'No. 400' yarn into fine printing cloths, and received therefor $6 86.

The wagons used in the Santa Fe trade are made at Pittsburgh in large quantities, and are described as large as the old class of steamboats, and drawn by six Norman blood horses, Indian file.

The United States have now lying idle about ten millions of dollars, in the deposit banks; $550,000, the greatest amount in any one bank, is deposited in the Merchants' Bank, Boston.

A correspondent of the Boston Cultivator says that the most effectual scare-crow that can be placed in a cornfield, is a number of barrels, with the head up. Crows are averse to liquors.

The importance of being able to read the Bible, is seen in a report of the inspector of the Auburn State Prison, from which it appears that of 683 convicts, 373 could not read the Bible.

It is stated that about fifty members of Congress have applied to the President, for appointments, either for themselves or their relatives, in the army, for Mexico.

The Boston Traveller states, that a gentleman in Essex county has recently imported a kind of grass seed, which is said to have yielded, in a single season, five clippings, an aggregate length of 28 feet

An exchange paper says, "A wise man will speak well of his neighbor, love his wife, (his neighbor's wife?) and pay for his newspaper." Better pay that in advance.

The Baltimore Argus says it is estimated that the two circusses that have just left Washington after several weeks performances, carried away with them $10,000.

The steamship Alabama, of New Orleans, has been chartered by Government at $16,500 per month, to carry troops and munitions to Texas. The terms appear rather extravagant.

The Legislature of New York, prior to adjournment, passed by acclamation a resolution authorising the Governor to call out 50,000 volunteers for the service of the U. S. in the Mexican war.

The steamboat Borcas, No. 2, was lately destroyed by fire on the Mississippi river, together with a valuable cargo, among which was $60,000 in gold dust, belonging to a Mexican merchant.

Among the passengers of a canal boat which recently passed through Rochester, was a lady 106 years old, accompanied by her son, a youth of 80, returning from a residence in Michigan.

There have been erected in Philadelphia, within the two years past, 3,550 buildings; and preparations are being made for the erection of 2,500 more, during the present year.

Madame de Witt, of Hanover, Eng., has just completed a globe of the moon, in which all the discoveries that have been made in the lunar planet are set forth with the minutest particularity.

The report that an army of six thousand girls from Lowel, are going to the National Fair at Washington is not confirmed, though their non-appearance will be much regretted.

Fire has for some days been raging in the mountains near Frederick, Md., and nearly 1000 persons have been employed in repelling it from that village.

One hundred tons of cannon balls have been ordered to be cast at Philadelphia for the use of the army. A few specimens of Pennsylvania iron, may be introduced into Mexico.

The U. S. Gazette says that a Philadelphian has sent to the National Fair at Washington, the furniture for a bed chamber, valued at thirty thousand dollars.

The first newspaper published in Virginia, was at Williamsburg, in 1780. The terms were $50 per annum for the paper, and $10 per week for an ordinary advertisement.

The rifles and muskets in the various arsenals, and in charge of the General Government, are estimated at one million nine dundred thousand.

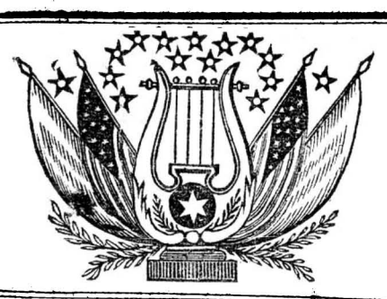
The City Guards, Philadelphia, have mustered one hundred men, fully equipped, in the United States, uniform, and have forwarded Capt. H. to Washington to volunteer their services for Mexico.

A Southern paper, speaking of one of Nature's garden spots in Florida, says: "Corn at present is knee high, and green peas, cucumbers and oranges, are daily table luxuries.

The shipments of wheat from Chicago, from the opening of navigation to May 1st, reach the large aggregate of 220,425 bushels. Of this amount 146,095 bushels went to Buffalo.

The Mississippi valley is likely to supply the world with pig lead. The whole amount to be brought to market this year will probably exceed seventy million pounds.

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The Workingman's Appeal.

Revolving years still speed their source away
And man still tramples on his fellow clay.
Throughout the world the people cry in pain,
Strong are they bound in slavery's galling chain.

Too long their dearest rights have been betray'd,
Too long have tyrant's iron sceptres swayed;
Still are they kept in superstitious awe
By drones with money, by the aid of law.

Yea, thousand's of the laboring race of man,
From year to year since early time began,
Have spent their days in service, toil and pain,
And all their labor's been the rich man's gain.

The poor man's hands rear up the palace wall,
His skill and toil bedeck the palace hall,
Yet hardly knows he where to lay his head,—
His home's a hovel, and the straw his bed!

He makes fine clothing with its glossy hue,
To deck the persons of the lordly few;
Yet, for himself, a coat can scarce obtain,—
He toils severely, but he toils in vain!

What makes this difference in the social state?
Are all things govern'd by decrees of fate?
Why should the laborer, who prepares the feast,
Partake of none, or yet partake the least?

There is no change in Earth,

There is no change in earth,
From the day of our birth,
To the hour when its bosom receives us,
Its flowers are in bloom,
All the way to the tomb,
It is man—man alone—that deceives us.

When the beautiful spring
Wakes the breeze with her wing,
And the birds carol blithe in the wild-wood,
As inspiring their lay,
And their plumage as gay,
As they were in the days of our childhood.

The tremulous beam
Of the moon on the stream
That ripples beneath it, in gladness,
When its beauty hath wrought
In our hearts a glad thought,
Is the same as when gazed on in sadness.

But, alas for the earth!
From the day of our birth,
Man, changing and fading, deceives us,
And ourselves fade so fast,
That our bloom is o'er-past,
Ay! long ere its bosom receives us.

A Wish.

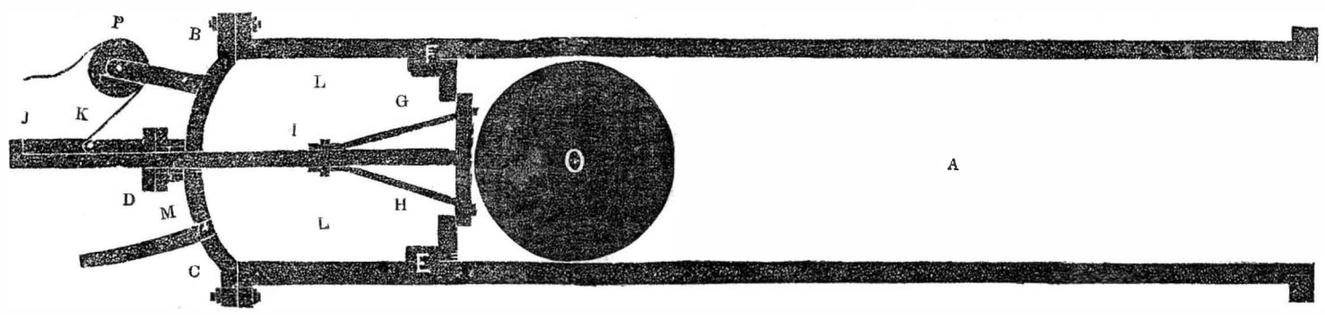
I wish I had a low-roof'd cot
Beside a shady wood,
With a streamlet running by the door,
And a little skiff upon the shore;
I'd have a green and sloping lawn,
Filled with tame and sportive fawn,
Who would not flee at my approach,
Or on my garden walk encroach.
I'd have a garden fair and wide,
Planted by the streamlet side;
No flowers but what were rich and rare,
Should ever bloom or flourish there;
But on the side nearest my cot,
I'd plant the true forget-me-not,
And in some lonely little alley,
Should bloom the lily of the valley;
I'd have a neat and vine clad arbor,
And after a summer's cooling shower,
I'd rest within my rosy bower;
I'd have a beautiful canary,
With limbs as light as any fairy,
And to its song I'd often listen,
Or watch its little black eyes glisten;
I'd have a library well stored
With books of new and ancient horde,
And those well tried and proven true
I'd have of money a good store,
And to the poor ne'er shut my door;
But travellers should as welcome be,
As if they paid a generous fee.
Thus with my books and friends and flowers,
I'd pass some very happy hours.
I'd not forget who gave me all
My blessings, either great or small,
But thankful to my gracious God,
I'd try to love and keep his word.

The Monstrous Wild-Men.—A hoaxical correspondent of the 'South Missourian,' states that one of the monstrous animals, frequently noticed in the western papers as *wild-men*, has been killed and another taken alive. The one that was killed, (says the account) proved not to be a woman, as was expected. They are of immense size; the foot of the dead one is twenty-one inches long, and he measures, extended on a plank floor, fourteen feet and eight inches; the other stands fifteen feet six inches in his bare feet. Both of them are entirely naked, although their bodies are quite hairy, and skin nearly the color of an Indian.

Wouldn't Swap.—A hardened offender being about to be hung, an attendant clergyman (Universalist?) consolingly remarked to him, "In a few moments you will be in another and a better world; I envy you your place." "Do you," said the fellow eagerly: "how'll you swap situations?" The clergyman did not care to swap, however, and the poor fellow had to enjoy his privilege.

The Way of the World.—A New Orleans paper justly complains of the appointment of rich men to the most lucrative offices, to the exclusion of others of superior abilities but moderate circumstances; and adds: 'It galls the body politic to see heavy capitalists getting offices which they do not need, and each of which would afford a decent support for several families.

A BATTERING ENGINE.



Introduction.—The only reasons that can be assigned for continuing in use in our fortifications the common cannon, powder, and ball, is, that it is fashionable armament, and in case of occasion for their use they will make a tremendous noise; the bellowing or thundering of cannon, is among the beauties of warfare. The fact has long been established, and at this day, no one will venture to dispute that an incomparably more efficient and effectual defence may be made by means of steam or compressed air, than with gunpowder; and yet with less than one-tenth part of the expense. The above engraving represents sectionally, an engine, capable of throwing a ball, or cylindric block of granite, of 15,000 lbs. weight, and with sufficient force to destroy any ship within the range of a mile: and yet the entire cost of this powerful engine would not exceed 3,000 dollars: a sum hardly noticeable in the armament of ordinary fortifications.

Description.—A hollow cylinder, A, 25 feet long, and four feet in diameter, is made of wrought iron plate, one inch thick, and planished inside. At one end, B C, is a strong, swelled cylinder-head, with a stuffing-box, D, in the centre. At E F, five feet distant from the first, is another cylinder head, with a large aperture, G H, in the centre; and this aperture is closed by a large valve, G H, which is held firmly in contact with the cylinder-head, by the centre-rod and braces, I, and the rod is held in place by the projection, J, and the two toggle-levers, which are connected by the hinge-joint, K. This air-chamber, L L, may be charged with compressed air, via the pipe and valve, M, (the air being compressed by a common air pump, worked by a steam engine or other power,) to the extent of 1000. lbs. per square inch; and the open part of the cylinders may be charged with a ball, O, or a granite cylinder of 15,000 lbs. weight. Then when the toggle-levers are raised by a rope, which passes over the pulley, P, the large valve is opened, and the expansive force of the compressed air, acts on the ball, and will give it a velocity of 1000 feet per second: sufficient to project it a mile at least. Of the effect of an apparatus of this description, wee shall leave our readers to judge. If any more minute description or demonstration is required, we are prepared to give it at short notice.

Selected Articles.

Be not Discouraged.

Let not the poor mechanic be discouraged in his efforts to attain intellectual elevation. Many of the brightest luminaries of the scientific and literary world, sprung from the ranks of the toilers, but they had a noble ambition—not to rise *above* their own rank—nor to become the oppressors, but the benefactors of their fellow men.

The genius of a few laborers has done more to ameliorate the condition of man, and break off the shackles of servitude and degradation, than all the high bred literati that the world has yet known—

Newcomer the plumber, Smeaton and Wait, the watch-makers, and Fulton, the poor painter, have through their inventions and discoveries, opened a world of enjoyments, which have given a new impulse to the civilization and refinement of man. They were originally poor mechanics.

The influence of their improvements on the steam engine, with others which have since been made, upon the destinies of man, can not be estimated. But for the steam engine to facilitate mining operations, the large population of England, particularly in the manufacturing districts, would be illy supplied with fuel, so great would be the expense of mining and transporting it to market.

Many persons imagine that increased production (when the result of machinery) oppresses the laborer, but this is a mistake. It will be found upon examination, that the more labor there is required to perfect any fabric, the less will its use prevail among the poor—even the very men who produce it.

When stockings were made by hand, their use in England was confined to wealthy classes. But stockings are now manufactured by machinery, and are generally worn.

The inventions of Arkwright and Compton, the barbers, have enabled the poorer classes of society to clothe themselves as they were never clothed before. A poor shoemaker discovered the properties of the magnet, which led to the invention of the compass, without which this continent could not have been discovered, nor peopled by its present race.

Many other examples might be cited to show that the working classes are indebted for the introduction of their most valuable physical comforts, to men of their own rank.

Let no laborer, therefore, be discouraged in his efforts to improve the condition of himself and fellow men; let him toil with his *mind* as well as hands, and he will assuredly do something for society. A heavy weight presses upon the shoulders of the poor, and crushes them to the earth—that weight is mental torpor; let them shake it off, and they will be free—in mind and body.

Hot Springs.—Capt. Fremont in his recent exploring expedition to Oregon, found a great many hot springs in different regions. The water of one here mentioned was almost boiling at its edge. In speaking of it he says:

'Entering the neighboring valley, and crossing the bed of another lake, after a hard day's travel over ground of yielding mud and sand, we reached the springs, where we found an abundance of grass, which, though only tolerably good, made this place with reference to the past, a refreshing and agreeable spot.

This is the most extraordinary locality of hot springs we had met during the journey. The basin of the largest one has a circumference of several hundred feet, but there is at one extremity a circular space of about fifteen feet in diameter, entirely occupied by the boiling water. It boils up at irregular intervals, and with much noise. The water is clear, and the spring deep; a pole about sixteen feet deep was easily immersed in the centre, but we had no means of forming a good idea of the depth. It was surrounded on the margin with a margin of green grass, and near the shore the temperature of the water was 206 degrees. We had no means of ascertaining that of the centre, where the heat was greatest; but, by dispersing the water with a pole, the temperature at the margin was increased to 208 degrees, and in the centre it was doubtless higher. By driving the pole towards the bottom, the water was made to boil up with increased force and noise. There are several other interesting places, where water and smoke or gas escape, but they would require a long description. The water is impregnated with common salt, but not so much as to render it unfit for general cooking; and a mixture of snow made it pleasant to drink.'

Science of Mechanics.

(Continued from No. 36.)



Friction and Traction.—By the term friction, is understood the resistance which the surface of one body presents to the motion of that of another, when in close contact. Traction is a word of recent origin, and implies the same resistance, but in such a degree as to prevent any motion of the second surface on the first. The resistance is produced by a minute roughness of the surface, whereby the projecting points of one surface take hold of those of the other: on this account the resistance is found to be greater between two surfaces of equal metals or materials, than between those of diverse articles. The friction between two pieces of iron, or two pieces of brass, is greater than that between iron and brass. No metallic substance can be sufficiently polished to prevent this resistance; for although the roughness of the surface may not be palpable or visible, yet it evidently does exist in the smoothest metallic surfaces. To avoid as much as possible this resistance, machinists and others have adopted the practice of making pivot-boxes of a different material from that of the pivots or gudgeons of machinery, and of oiling the surfaces of the parts of machinery that are exposed to friction, thus filling the cavities, and preventing the actual contact of the surfaces. The resistance of friction is in some measure proportionate to the force with which the two surfaces are pressed together; it also depends in some measure on the extent of the surfaces which come in contact; but it has been proved by experiment that the resistance of friction is increased but very little if any by increased velocity in the moving surfaces. If a pivot which sustains a ton weight be two inches in diameter and one inch in length; or one inch in diameter and two inches in length, the friction will be about the same; but in either case, it will be greater by 25 per cent. than if the pivot be one inch both in length and in diameter; thus showing that the friction is reduced by the reduction of surface in contact, more than it is increased by doubling the pressure per square inch. Hence it is advisable to use as small pivots as are consistent with safety, with regard to strength. When the pivots or the ends of a horizontal axle or mandril, terminate in conical points, and those points have their bearings in conical boxes, as represented in the cut, the friction is reduced nearly to the lowest point; but there has been found a difficulty in keeping the points oiled, and in making them sufficiently durable for heavy machinery. Vertical shafts or mandrils may be made to run on a point without difficulty, and in our next we shall submit a plan for supporting even heavy horizontal shafts, on comparatively delicate points, thus avoiding nearly the whole of the ordinary friction.

(To be continued.)

Gelatine from Bones.—Animal bones of all kinds, and even the chips and shavings of bones, are valuable for the manufacture of gelatine, or glue, which may be easily procured therefrom, and of an excellent quality. Bones are composed, chiefly of Gelatine and Phosphate of Lime. By putting them to steep in diluted muriatic acid, the phosphate of lime is dissolved, and the gelatine retains the shape of the original bones, but is quite soft and moist, and if left in that state, would soon become putrid: but after the separation of the phosphate of lime, this gelatine may be dissolved, evaporated and formed into sheets, and dried by the ordinary process, and reserved for use.

The Temperance Cause.—All friends of temperance will be gratified to learn that several of the principal cities in New York have decided by large majorities against the granting of licenses to sell ardent spirits. In Brooklyn, the temperance majority was 3000: Albany 1506: Troy 968; Utica 300; Poughkeepsie 400, and Rochester 600. According to present indication, the liquor business in this city will receive a check next year.

Speed of the Mails.—When Dr. Franklin was Postmaster General, he was heard to express the opinion that the time would come when the mail might be conveyed from Philadelphia to Boston in a fortnight, and possibly in less time. The mail is now carried from city to city in sixteen hours.

General Taylor.—This Officer who commands the army of occupation in Texas, and who has evinced so much skill and bravery in his recent engagements with the Mexicans, is a Kentuckian by birth, and is said to have been born in 1790, which would make him 56 years of age. He entered as a Lieutenant of infantry, and at the commencement of the late war had risen to the command of a company. In 1812 for his gallant defence of Fort Harrison, President Madison conferred on him the brevet rank of Major, and he is now the oldest brevet in the army. In 1812 he became Colonel, and in command of the 6th infantry went to Florida in 1836, where he distinguished himself as much as he could in such a sort of warfare.—He commanded the detachment of about 500 men which met, in Dec. 1836, on the banks of the O-ke-ho-he, the party of 600 or 700 Indians under Allitor, Sam Jones, &c. Col. Taylor won the day in this battle, although the Indians fought with great bravery, and only yielded the ground inch by inch, and that at the point of the bayonet. It was a dearly purchased victory, however, for 139, more than a fourth of Col. Taylor's men, were killed and wounded. For his bravery and success in this battle, the brevet of brigadier General was conferred on Gen. Taylor, and the chief command in Florida was given to him. After his retirement from Florida, in 1840, he had the command of the first department of the army, with his head quarters at Fort Jesup, Louisana, which position gave him the command of the 'army of occupation.' He is spoken of as a man of much general information; an excellent and tried soldier; a prudent and skillful commander; whose traits of character are; a wise precaution in providing for the hour of trial; and a fearless, reckless courage in battle.

Insane Asylums.—Some of the Boston people begin to *suspect*, what we have discovered and expressed years ago, that the privileged speculating establishments called "Insane Asylums," need looking after. Ever since a friend and acquaintance of ours, while perfectly rational, was treacherously decoyed to one of the establishments, confined in a dungeon, detained a year concealed from parents and friends, and finally *made insane* by violent drugs and cruel treatment, we have entertained rather unfavorable opinions of the—adjective wanted—concerns.

Slavery in Maryland.—We have received a copy of a pamphlet under this title, written by a Virginian and published in Baltimore. If the Southern people take up the discussion of Slavery, it will be time for the Northern Abolitionists to keep moderately quiet on the subject. The Southern people will probably find nothing in this pamphlet to complain of.

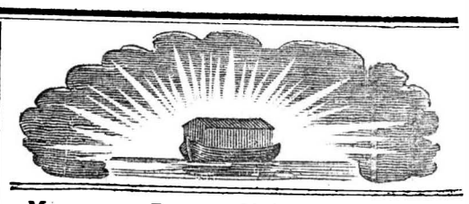
Trade of St. Louis.—Among the articles imported into St Louis Mo. during the last year, we notice 94,000 lbs. of bacon, 32,000 bushels of barley, 14,000 buffalo robes, 107,000 bushels of corn, 139,000 barrels of flour, 750,000 pigs of lead, and 971,025 bushels of wheat. We have no account of the exports, but understand they far exceed the imports, which shows in some measure the importance of the business of that section of country.

Mechanic's Tools.—Our Mechanic friends and readers may find a first rate, and very extensive assortment of tools of all descriptions ordinarily used in the various mechanical trades, by calling at the hardware and tool store of W. N. Seymour, & Co., No. 4 Chatham Square, N. Y. There will be no mistake about finding every article in the line, of good quality and moderate prices. 'Dont forget the number.'

A Surgical Operation.—A sailor on board of a vessel in the harbor, fell from the rigging to the deck and broke his leg. No surgeon being near, the leg was bound up with tarred canvass and rope yarn, and the sailor went about his business again as if nothing had happened! This story will appear rather incredible, and may induce the reader to suspect that the leg was a *wooden one*.

Chapparel.—This word frequently occurs in the reports from the seat of war, being the term applied to dense thickets composed of musquito bushes matted with thorny vines. Its ordinary height is about six feet.

An Exemplary County.—Judge Edwards recently repaired by appointment to Sullivan County to hold the Circuit Court, but on arriving he found there was not a single case to be tried, either civil or criminal. There has not been a criminal in the county jail for fifteen months.



Mysterious Power.—Christianity, like a child, goes wandering over the world. Fearless in its innocence, it is not abashed before princes, nor confounded before synods. Before it the blood-stained warrior sheathes his sword, and plucks the laurel from his brow, and the midnight murderer turns from his purpose, and like the heart smitten disciple, goes and weeps bitterly. It brings liberty to the captive, joy to the sufferer, freedom to the slave, repentance and forgiveness to the sinner, hope to the faint-hearted, and assurance to the dying. It enters the hut of the poor man, and sits down with him and his children; it makes them contented in the midst of privations; and leaves behind an everlasting blessing. It walks through cities, amid all their pomp and splendor, their imaginable pride and unutterable misery,—a purifying, ennobling, remedying angel. It is like the beautiful champion of childhood, and comforting associate of age It ennobles the noble, gives wisdom to the wise, and new grace to the lovely. The patriot, the priest, the poet, and the eloquent man, all derive their sublime power from its influence.—*Pittsburg Christian Advocate.*

Profitable Religion.—A public statement has for some time past, been posted in the churches of Madrid, Spain, that the sacred and royal bank of piety has, since its foundation in 1721, to November 1826, delivered from purgatory one million thirty thousand, three hundred and ninety-five souls; eleven thousand four hundred and two souls from Nov. 1829 to Nov. 1837. The net cost of delivering all these souls from purgatory, was upwards of forty-three millions of francs; and a little over half a million of masses. So it seems that a great many more francs than masses are required to get a soul out of suffering. These forty-three millions francs, it will be recollected, are only what are paid into the royal bank of piety for the liberation of souls from purgatory; and are but a mere trifle in comparison to what the Romish priests fleece out of their ignorant followers in the way of pardons, indulgences, and numerous other inventions.

Circuitous Preaching.—Dr. Elliott, of the Western Christian Advocate, relates that on one occasion, when preaching on a Sunday, his only hearer was a poor Mohawk woman, who had come on foot fourteen miles, with a child in her arms, to hear the sermon. He had two interpreters, one of whom understood English and Wynadott, but no Mohawk; and the other understood Mohawk and Wynadott, but no English. But by preaching in English, and one interpreter (Jonathan) converting it into Wyna lott, and the other interpreter (Between-the-log) giving this in Mohawk, they all made out to preach to the poor Indian woman, as she sat at the foot of a large oak, with her child fastened on a board in her arms.

Hypocrisy.—It was a point mentioned in our prospectus, that we should occasionally expose ignorance and *knavery*, especially where we found them sheltered by arrogance and aristocracy. Of knavery, strictly considered, there are many kinds, and very diverse:—some are honest and others deceptive and dishonest;—but of knavery, though there may be others more atrocious, there is none so utterly contemptible as sheer bigoted hypocracy; that which professes godliness and Christianity for the sake of worldly gain, while at enmity in heart, with every principle thereof. We have in several instances, declined exchanging with professedly infidel papers, on account of our aversion to the unreasonableness and ingratitude thereof; yet it must be confessed that open, infidelity, if not less pernicious, is less reprehensible than infidelity conducted under the garb of religion. We have been led to these remarks by observing in an exchange the following extract from a late number of the "Investigator," of Boston, although we should not object to the accumulation of wealth by religious popularity, so much as the publication of pernicious, and frequently slanderous articles in the "Olive Branch."

Modern "Godliness is Great Gain."—The Reverend Editor of the "Olive Branch" advertises that he is "just finishing several large and elegant houses on Spring street, in Ward 3," Cambridge. He informs us that he "has also two very large houses in Somerville." So! so! this is getting on in the world pretty comfortably for one who professes to follow in the footsteps of a man who despised "elegant houses" and who taught his followers to despise them too!—Wonder what he would say to his "Olive Branch" servant, were he to go over to Cambridge and see the "several large and elegant houses on Spring street," and then to Somerville, and see the "two very large houses" over there? What would he say? Why, probably just what we do, that *modern* "godliness is great gain." The "Olive Branch" used to complain a great deal of Mr. Himes for getting rich by Millerism, but we fancy he didn't feather his nest by it so well as Mr. Norris has feathered his by Methodism.—*Boston Investigator.*

Yang Seen Sang.—This is the name of the accomplished Chinese scholar who is now on a visit to this country with Rev. Mr. Shuck. He manifests much admiration at the sights and society of this country, and is particularly astonished to see with what respect and estimation the women are treated. To see ladies the equals of gentlemen, is to him a wonder. It has been often and truly remarked that it is solely to christianity that women are indebted for the elevation of the sex from a state of menial and degraded servitude; a privilege not enjoyed in any but christian countries.

Western Hospitality.—A colporteur reports, that having travelled 3,400 miles in the Western States, he has not been charged one cent for lodging or horse-feed, in ten months.

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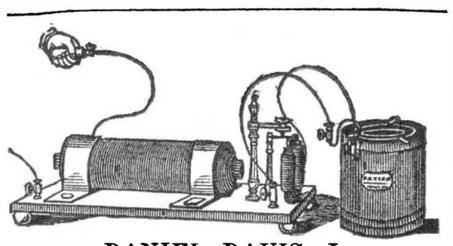
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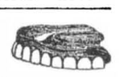
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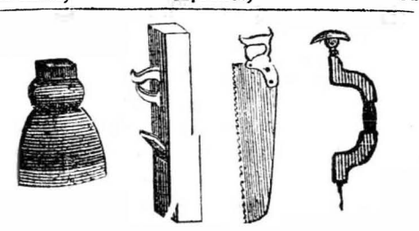
Roast Turkey,	18d	Boiled Ham,	6d
" Goose,	18d	Pork and Beans,	6d
" Chicken,	18d	Veal Pie,	6d
" Duck,	18d	Beef Steak Pie,	6d
" Beef,	6d	Chicken Pie,	12d
" Pork,	6d	Mush and Milk,	6d
" Veal,	6d	Rice and Milk,	6d
" Lamb,	6d	Lamb Pot Pie,	6d
" Pig,	12d	Fried Fish,	6d
Boiled Chicken,	12d	Fried Clams,	6d
" Mutton,	6d	Ham and Eggs,	12d
" Corned Beef,	6d	Chicken Soup,	6d
" Pork,	6d	Beef Soup,	6d
" Fish,	6d	Coffee,	6d

Dessert.

Suet Pudding	6d	Mince Pie,	6d
Indian Pudding,	6d	Apple Pie,	6d
Rice Pudding,	6d	Peach Pie,	6d
Plum Pudding,	6d	lum Pie,	6d
Bread Pudding,	6d	umpkin Pie,	6d
Apple Dumplings,	6d	Custard Pie,	6d

Breakfast and Tea.

Beef Steak,	6d	Hot Corn Bread,	6d
Veal Pie,	6d	Indian Cakes,	6d
Mutton Chops,	6d	Boiled Eggs,	6d
Ham and Eggs,	12d	Fried Eggs,	6d
Fried Tripe,	6d	Toast,	6d
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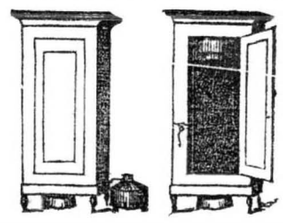
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